

CLAIMS

What is claimed is:

1. An intervertebral spacer device, comprising:
 - a first baseplate, having an outwardly facing surface and an inwardly facing surface, the inwardly facing surface having a central hole;
 - a second baseplate, having an outwardly facing surface and an integrated convex structure, the convex structure including a curvate pocket, the convex structure's curvate pocket being formed by a central portion of an outwardly facing surface of the convex structure concaving inwardly to define a semispherical contour, the convex structure's curvate pocket further having an apex at a center of the convex structure's curvate pocket's semispherical contour, the convex structure further having a bore through the convex structure's curvate pocket's apex from the convex structure's outwardly facing surface to the convex structure's inwardly facing surface, the second baseplate having on its outwardly facing surface an access hole leading to the convex structure's curvate pocket;
 - a post having a longitudinal axis, a tail end, and a head end having a ball defining a spherical contour;
 - a cap having a first part and a second part, the first part having an inwardly facing surface and a curvate pocket having a semispherical contour, the cap's curvate pocket being formed by a central portion of the cap's inwardly facing surface concaving outwardly; and
 - a spring member; wherein
 - the tail end is disposable through the access hole and through the bore, and the head end is disposable through the access hole and prevented from passage through the bore, such that the ball is seatable in the convex structure's curvate pocket; and wherein
 - the tail end is securable in the central hole; and wherein
 - the first part of the cap is disposed such that the cap's curvate

pocket's semispherical contour opposes the convex structure's curvate pocket's semispherical contour--such that the semispherical contours together define a curvate socket defining a spherical contour that closely accommodates the ball's spherical contour for rotation and angulation of the ball in the curvate socket about a central portion of the ball, and such that the post is accommodated for rotation in the bore about the longitudinal axis as the ball rotates in the curvate socket, and such that the post is accommodated for angulation in the bore about the ball's central portion as the ball angulates in the curvate socket; and wherein

the spring member is disposed between the first part of the cap and the second part of the cap, and the second part of the cap is securable to the second baseplate, such that a compressive load applied to the outwardly facing surfaces of the baseplates is borne by the spring member.

2. The intervertebral spacer device of claim 1, wherein each of the inwardly facing surface of the first baseplate and the inwardly facing surface of the convex structure has a respective perimeter region, and the perimeter regions have corresponding contours that reduce surface wearing during rotation and angulation of the ball in the curvate socket.

3. The intervertebral spacer device of claim 1, wherein the access hole is surrounded by a circular recess, and the second part of the cap is securable in the circular recess.

4. The intervertebral spacer device of claim 1, wherein the second part of the cap is compression lockable to the second baseplate.

5. The intervertebral spacer device of claim 1, wherein the bore is tapered to a larger diameter toward the convex structure's inwardly facing surface, and the post is accommodated, by the bore being tapered, for angulation in the

bore about the ball's central portion as the ball angulates in the curvate socket.

6. The intervertebral spacer device of claim 1, wherein at least one of the curvate pockets has a hemispherical contour.

7. The intervertebral spacer device of claim 1, wherein the second part of the cap has an outwardly facing surface and at least one of the second part of the cap and the first baseplate includes an osteoinductive vertebral body contact surface on its outwardly facing surface.

8. The intervertebral spacer device of claim 1, wherein the tail end is compression lockable into the central hole.

9. An intervertebral spacer device, comprising:

a first baseplate, having an outwardly facing surface and an inwardly facing surface, the inwardly facing surface having a central post secured thereto, the post having a longitudinal axis and a ball at a head end of the post that is inwardly directed toward the second baseplate, the ball defining a spherical contour;

a second baseplate, having an outwardly facing surface and an inwardly facing surface, the second baseplate including a convex structure integral therewith and a cap secured thereto, the convex structure and the cap together establishing a curvate socket communicating with a central bore through the convex structure, the curvate socket defining a spherical contour; wherein

the ball is capturable in the curvate socket, with the curvate socket's spherical contour accommodating the ball's spherical contour for rotation and angulation of the ball in the curvate socket about a central portion of the ball; and

with the central bore accommodating the post for rotation in the central bore about the longitudinal axis as the ball rotates in the curvate socket, and accommodating the post for angulation in

the central bore about the ball's central portion as the ball angulates in the curvate socket; and further comprising a spring member housed by the cap such that a compressive load applied to the outwardly facing surfaces of the baseplates is borne by the spring member.

10. The intervertebral spacer device of claim 9, wherein each of the convex structure and the cap has a respective curvate pocket, the second baseplate has an access hole leading to the convex structure's curvate pocket and accommodating passage of the post and the ball for seating of the ball in the convex structure's curvate pocket with the post disposed in the central bore, and the cap is secured to the second baseplate such that the curvate pockets of the convex structure and the cap oppose one another to define the curvate socket.

11. The intervertebral spacer device of claim 10, wherein the access hole is surrounded by a circular recess, and the cap is secured in the circular recess.

12. The intervertebral spacer device of claim 10, wherein the cap is compression locked to the second baseplate.

13. The intervertebral spacer device of claim 10, wherein at least one of the curvate pockets has a hemispherical contour.

14. The intervertebral spacer device of claim 9, wherein each of the inwardly facing surface of the first baseplate and the inwardly facing surface of the second baseplate has a respective perimeter region, and the perimeter regions have corresponding contours that reduce surface wearing during rotation and angulation of the ball in the curvate socket.

15. The intervertebral spacer device of claim 9, wherein the central bore is tapered to a larger diameter toward the second baseplate's inwardly facing surface, and the post is

accommodated, by the central bore being tapered, for angulation in the central bore about the ball's central portion as the ball angulates in the curvate socket.

16. The intervertebral spacer device of claim 9, wherein the cap has an outwardly facing surface and at least one of the first baseplate and the cap has an osteoinductive vertebral body contact surface on its outwardly facing surface.

17. An artificial intervertebral disc, comprising:

a first baseplate, having an outwardly facing surface and an inwardly facing surface, the inwardly facing surface having a central hole;

a second baseplate, having an outwardly facing surface and an inwardly facing surface;

an inwardly directed convex structure integral with the second baseplate, the convex structure forming a curvate pocket having a semispherical contour on the second baseplate's outwardly facing surface, the convex structure further having a bore aligned with the central hole and passing from the convex structure's curvate pocket to the second baseplate's inwardly facing surface;

a ball at a head end of a post, the ball being seatable in the convex structure's curvate pocket with the post disposed through the bore, the post having a tail end securable in the central hole; and

a cap forming a curvate pocket having a semispherical contour, the cap being securable to the second baseplate with the cap's curvate pocket opposing the convex structure's curvate pocket to form a curvate socket within which the ball is rotatable and angulatable about a central portion of the ball, the cap housing a spring member such that a compressive load applied to the outwardly facing surfaces of the baseplates is borne by the spring member.

18. The intervertebral spacer device of claim 17, wherein each of the inwardly facing surface of the first baseplate and the

inwardly facing surface of the second baseplate has a respective perimeter region, and the perimeter regions have corresponding contours that reduce surface wearing during rotation and angulation of the ball in the curvate socket.

19. The artificial intervertebral disc of claim 17, wherein each of the inwardly facing surface of the first baseplate and the inwardly facing surface of the second baseplate has a respective perimeter region, and the ball's curvate recess's boundaries accommodate angulation of the ball within the curvate socket at least until the perimeter regions meet, and wherein the bore is tapered to a larger diameter toward the inwardly facing surface of the second baseplate, and wherein the post is accommodated, by the bore being tapered, for angulation in the bore about the ball's central portion, as the ball angulates in the curvate socket, at least until the perimeter regions meet.

20. The artificial intervertebral disc of claim 17, wherein the cap has an outwardly facing surface and at least one of the first baseplate and the cap has an osteoinductive vertebral body contact surface on its outwardly facing surface.